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The effect of management system on Camel's milk yield and calve growth rate in north Kordofan, Sudan.

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Abstract

Twenty lactating she-camels and two mature male for mating were selected in north Kordofan state, Sudan. The animals were divided into two groups 10 she-camel of each with one male for mating. Group one managed in a semi intensive system, all animals were herded during night in closed in pen and set free during the midday. Supplementation consists of concentrates (2kg/day) and roughages (5kg/day) were used. The other group served as a control (Under traditional system) all animals managed traditionally but within the site of the experimental work, on this system the animals are brought to grazing areas where they selected the feed by themselves from the available plants and allowing nothing as supplemented feeding. The calves' weights were determined every six months using traditional balances, also daily milk yield were recorded.

The study indicated that daily milk production in she-camel reared under semi-intensive system was higher than the camels reared under traditional management. Also the results indicated that the body weight of the calves under semi-intensive system during six, 12 and 18 months of age were the highest than the calves reared in the traditional system, semi-intensive system improved the daily growth rates of the calve. The study showed that there were non-significant differences between male and female on daily gain.

Introduction

Sudan ranks the second country in the world in Camel population (3.908 million heads). Most camels are raised within pastoral systems in the western Kordofan and Darfur and eastern regions of the country. Under traditional management the camel productive and reproductive traits are low. Traditional camel husbandry in Sudan has no future. The main constrains facing camel pastoral system; camels loose their base environments and desire of the herders to settlement in towns.

The Objective of this study was to investigate the impact of improved management system on camel productive and reproductive potentials in western Sudan.(compares between

traditional and semi-intensive management). Also the present study was planned to compare the efficiency of body weight gains in camel calves raised under traditional system and semi-intensive management in western Sudan.

Material and Methods

Study area

The study was carried out in Western Sudan (north Kordofan state, Sudan)

Experimental work:

Twenty camel calves (10 males and 10 females) at the first day of birth were selected. The camels-calves with their dams were maintained under semi-intensive and traditional management system. Calves were divided into two equal groups (group1 and group2), each group was composed of ten calves (5 male and 5 female) with their dams. Group (I) was managed in a semi intensive system, all animals were herded during night in closed pen and set free during the midday; Calves in semi- intensive system in addition of their suckling of their respective dams had supplementation diets (one kg of concentrate/head) at third months of age. Group (2) was served as a control (under traditional system) was managed traditionally but within the site of the experimental work (with no supplementation). In addition of suckling the camel calves were brought to grazing areas where they select food by themselves from the available plants (calves start nibbling almost at six weeks of age), no-supplementation was offered. In both systems, live body weight of camel calves were obtained through direct weighing every six months using a static weighing scale balances for birth weight and table balances for advance age, also daily milk yield was recorded.

Results and Discussion

The farming system on this study have significant effect ($P<0.01$), calves in semi intensive system recoded higher weight in 6 ,12 and 18 months of age(Table1), this due to the nutritional status of the calves. Also the supplemented diet for the dam may be increased milk yield according to the satisfaction requirements and due to that the calves got enough of the milk from their dams.

The results showed that, the average birth weights of the camel calves were 37.5 ± 0.6 kg and 37.6 ± 0.5 kg in semi-intensive and traditional system, respectively. There was no-significant difference between the two management systems, this may be attributed to the similarity of the management that the dams were obtained when they had been pregnant, so all the experimental

animals which entered the experiments were at the late pregnancy at twelve months and were coming from the same environment and managed under nomadic system.

In this study the daily weight body gains varied and depending on the type of management (table2 and figure1), in semi-intensive system weight gain was significantly (P<0.01) higher than the gain in traditional system which varying between 534.8±9.8 and 316.7±5.5 gram, respectively and these findings were agreement with the results of Turki *et al.*(2007).

The results of the present study under semi-intensive were in line of the findings of Khorchani *et al.* (2005) who study the camel calves' growth rate in Tunisia and revealed that the artificial nursing technique safeguards calves and ensures comparable mean daily gain compared to those of suckling calves 593 g and 607 g respectively. The results of the study under traditional system were in line of the findings of Nagpal *et al.* (2005) who postulated that body weights of camel calves are varying between 241–276 Kg at age between 10 and 12 months and reported the daily gain is varying from 377.6 to 420.9 g/day.

The results of this study showed that there were non-significant differences (P>0.05) between male and female on daily weight gain (figure2), but in contrast the birth weight of male and female showed significant differences (P<0.05).

The results of the present study were in line of the findings of Al-mutairi(2000) in Saudi, Burgmeister (1975) in Tunisian and Bhargava *et al.* (1965) in India. On the other hand these findings of the present study were disagreement with the findings of Iqbal *et al.* (2000) Khanna *et al.* (2004) in India and Hammadi *et al.* (2001) in Tunisia.

Table 1. Camels Calves body weight during 18 months of age

System	Camel Calves Weight (Kg ± SE) at			
	Birth	6 months	12 months	18 months
Semi-intensive	37.5 ± 0.6 ^{NS}	123.4± 2.2 ^{a}	221.0 ± 2.2 ^{a}	326.3 ± 2.4 ^{a}
Traditional	37.6 ± 0.5 ^{NS}	96.4 ± 1.6 ^{b}	159.7 ± 2.4 ^{b}	208.6 ± 2.5 ^{b}

^{ab}:: Means in the same column bearing different superscripts are significant.

NS: not significant at (P<0.05).

Table2. Camel Calves daily growth rate during Experimental Period

System	Camel calves daily weight gain(g ± SE) during			
	Birth-6 months	6 -12months	12-18 months	Over all period (18 months)
Semi-intensive	477.6 ±10.9 ^{a}	542.3 ±8.3 ^{a}	584.6±8.4 ^{a}	534.8 ±9.8 ^{a}
Traditional	326.8±8.3 ^{b}	351.6±10.6 ^{b}	271.8±16.0 ^{b}	316.7 ±5.5 ^{b}

^{ab}: Means in the same column bearing different superscripts are significant.

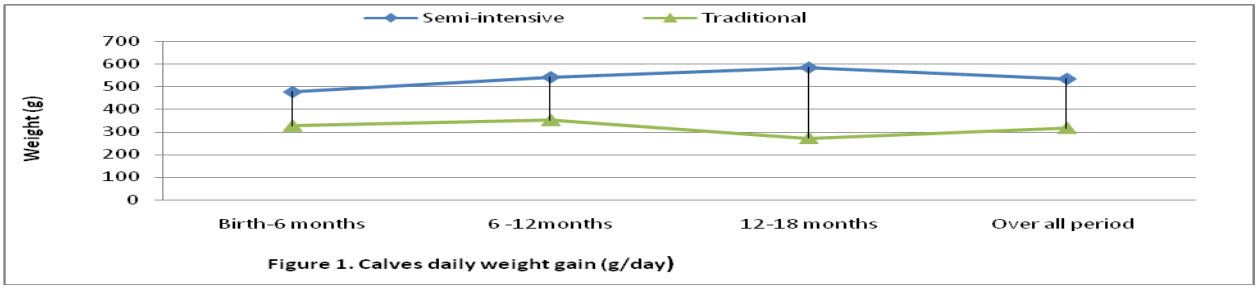

Figure 1. Calves daily weight gain (g/day)

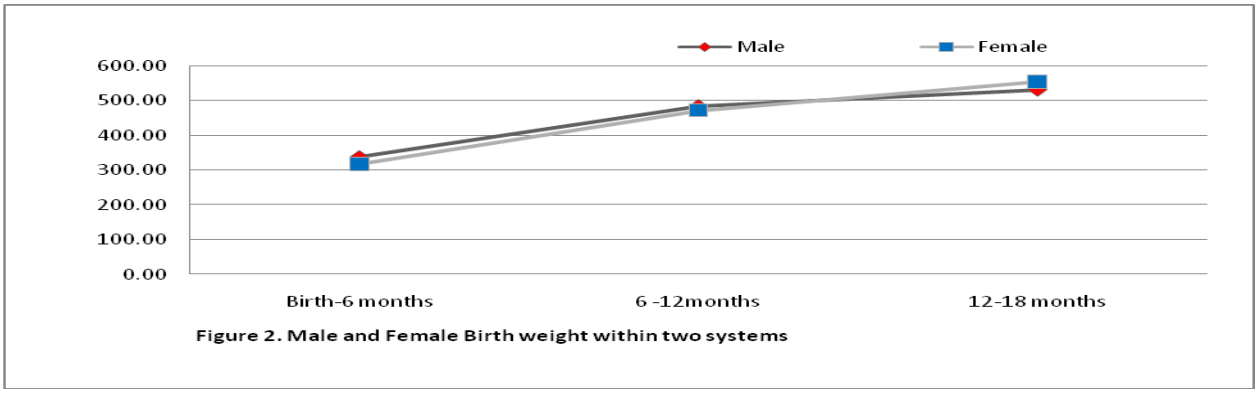

Figure 2. Male and Female Birth weight within two systems

Conclusion and Outlook

The result of the present study indicated that, supplementation of she camels and their calves improved calves growth rate, also the study indicated the importance of the nutritional status of she camels on body weight of the calves to improve production and reproduction performance of the animals.

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